

Serial No. 10/522,973
Art Unit 2114

PU020362
Customer No. 24498

Remarks

Claims 1-3, 5-8 and 11 remain in this application and have been Finally Rejected following the Official action of October 17, 2006. Applicants request consideration of claims 1, 5, 6 and 11 in view of the accompany amendments.

Before proceeding to address the rejections, applicants will briefly summarize their invention to assist the examiner in better appreciating the differences between applicants' invention and the art of record. As recited in amended claim 1, applicants have provided a media area network that has a storage system including at least one storage device for storing digitized information. A host system provides overall control of the media area network. A host bus adapter connects the host system and storage system. The bus adapter includes a port driver that monitors communications between the storage system and the host bus adapter through an active port, and switches to an alternative port in real time in the event of a failure. Associated with the port driver are means for queuing requests from an original port that failed to an alternative port; means for canceling all outstanding requests on the original port; and means for issuing at least one command via the alternate port.

In the event of an actual or even a suspected fault, applicants' failover recovery system cancels requests from the potentially failed port. Cancelling such requests precludes the circumstance that a request, possibly corrupted because of a failed port, will adversely impact system performance. Indeed, cancelling all requests from a failed port proves highly advantageous. Conversely, cancelling requests for a port ultimately proved fault free causes no harm since the requests get issued by an alternative port.

35 U.S.C. 103(a) Rejection of Claims 1-5

Claims 1-6 stand Finally Rejected under 35 U.S.C. 103(a) over US Patent Application Publication 2003/0126315, in the name of Tan et al. in view of the definition of *real time* provided in the Microsoft Computer Dictionary. In rejecting claim 1, the examiner contends that Tan et al discloses a storage system having a storage device for storing digitized data, as well as a host system having a host bus adapter. Additionally, the examiner alleges that Tan et al. monitor, the communication status between the storage system and host bus driver via a port

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driver. In the event of a failure, the port driver initiates switching to accomplish failover recovery. While the examiner acknowledges that Tan et al. does not specifically disclose performing failover recovery in real time, the examiner suggests that it would have been obvious, in view of the definition of *real time* provided in the Microsoft Computer Dictionary, to perform failover recovery in real time.

Applicants have amended claim 1 to incorporate the features previously recited in claim 5 regarding queuing of requests to an alternate port, cancelling requests on the original port, and issuing at least one command via the alternate port. Amended claim 1 now patentably distinguishes over the Tan et al. published patent application, notwithstanding the examiner's previous rejection of claim 5 over Tan et al.

In rejecting previously pending claim 5, the examiner relies on the following disclosure of Tan et al

[0046] The active path may fail which is detected by a number of methods including a command timeout and path verification command timeout, a target logout from the loop or fabric, and a loop or fabric problem reported by the Fibre manager or Fabric control software. A condition that may be set for this failure is that the standby controller is operable and the write cache is synchronized. The failover actions taken when this condition is found include activating the standby controller, ~~sending~~ previously outstanding and timeout commands, and event notifying the host to indicate the active path failed and path is no longer redundant

In particular, the examiner suggests "that when the failed port is no longer redundant, the host is aware, commands are either outstanding or timed out and so resent, commands are effectively cancelled." The examiner's statement makes no sense and moreover provides no basis to suggest the obviousness of applicants' feature of cancelling commands from the original (and now failed) port. Indeed, the highlighted portion within paragraph 46 of Tan et al. clearly states that outstanding commands get sent, rather than getting cancelled and thereafter queued on the alternate port as recited in applicants' now amended claim 1.

The timeout commands referred to by Tan et al. likely correspond to interrupt commands, as described in the attached definition from *Webpedia*, an on-line Internet dictionary. Such interrupt commands get generated after a certain interval to

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prompt execution of one or more program steps so that the program does not sit idle indefinitely waiting for commands. The timeout commands of Tan et al. do not serve to cancel previous requests as recited in amended claim 1.

The examiner has not pointed to any specific language in Tan et al. that affirmatively states that the originally sent commands actually get cancelled. Instead, the examiner maintains that Tan et al provides "wherein the failed port/controller is no longer redundant, the host is aware, commands are either out standing or *timed out* and so resent commands are effectively cancelled." However, a careful scrutiny of paragraph [46] of Tan et al. reveals that the term "timed out" does not appear at al. Rather, Tan et al. discusses the transmission of timeout (i.e., interrupt) commands, a different concept. Thus, the examiner appears to have mischaracterized Tan et al. to suggest command cancellation which the reference does not explicitly discuss.

In summary, the disclosure at paragraph 46 in Tan et al. of sending outstanding commands clearly does not teach, and indeed **teaches away** from cancelling outstanding requests as now recited in amended claim 1. Thus, assuming arguendo that motivation exists for making the Tan et al. system operate in real time, the resultant combination would not teach, and actually teaches away from applicants' invention as recited in amended claim 1. On that basis, applicants request withdrawal of the 35 U.S.C. 103(a) rejection of Claim 1.

Applicants claims 2 and 3 depend from claim 1 and incorporate by reference all of the features thereof. Thus, claims 2 and 3 patentably distinguish over the art of record for the same reasons as advanced for the allowability of claim 1. Applicants have cancelled claim 4, thus rendering the rejection of that claim moot.

Applicants have re-written claim 5 to recite the features checking for cancellation of requests and initiating fallover recited in now allowed claim 11. Claim 5 thus patentably distinguishes over the art.

35 U.S.C. 102(e) Rejection of Claims 6-10

Claims 6-10 stand Finally Rejected under 35 U.S.C. 102(e) as anticipated by Tan et al. The examiner maintains that Tan et al. discloses a storage system that practices applicants' steps of:

monitoring, at a lower-level port driver in the host bus adapter,
communication status between the storage system and the host bus adapter,
and in the event of a failure;

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initiating switching at the lower-level port driver to activate an alternative port, thereby achieving fail-over recovery.

Applicants have now amended claim 6 to further include the features of:

queuing requests from an original port that failed to an alternative port;
canceling all outstanding requests on the original port; and
issuing at least one command via the alternate port.

As discussed above with respect to the 35 U.S.C. 103(a) rejection of claims 1-5, the Tan et al. reference does not teach, and in fact teaches away from cancelling outstanding requests on the original port now recited in amended claim 6. Since Tan et al. does not teach all of the features now recited in amended claim 6 and claims 7-10 that depend therefrom, these claims patentably distinguish over the art of record. Applicants respectfully request withdrawal of the 35 U.S.C. 102(e) rejection of these claims.

Allowability of Claim 11

Applicants acknowledge the allowability of claim 11 if re-written in independent form to include the features of its base and intervening claims. However, applicants maintain that claim 6, from which claim 11 now depends, patentably distinguishes over the art of record. Applicant reserves the right to re-write claim 11 at a later date.

Conclusion

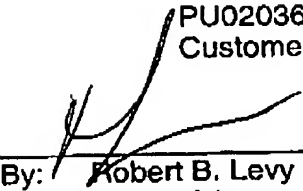
In view of the foregoing amendments to the claims and the accompany remarks, applicants solicit entry of this amendment and allowance of the claims. If, however, the Examiner believes such action cannot be taken, the Examiner is invited to contact the applicant's attorney at (609) 734-6820, so that a mutually convenient date and time for a telephonic interview may be scheduled.

Kindly charge the cost of the additional independent claim, as well as any other fees that may be due, to Deposit Account 07-0832.

Respectfully submitted,
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